

Remarks

This is in response to the Office Action mailed July 13, 2009.

Claims 1-28 were pending. Applicants have hereby canceled claims 7, 9-11, 17, 18 and 23 without prejudice.

Priority

The Office Action denies priority benefit of the U.S. provisional patent application serial no. 60/458,847 filed on March 28, 2003 for claims 3-6, 8-14 and 21-27.

Applicants respectfully traverse the denial of the priority claim from the provisional application. Applicants submit that the provisional application sufficiently describes the invention as claimed and enables a person of skill in the art to practice the invention.

With respect to claim 3, the provisional application states on page 6, lines 13-14:

Examples of dielectrics are Silicon dioxide, polyimide, polymethylmetacrylate. The list of materials is not intended to be limitative, but only to provide examples.

Thus, a person of skill in the art would immediately recognize that alumina can be used as a dielectric.

With respect to claims 4-6 and 12-14, a person of skill in the art would immediately recognize that the provisional application sufficiently describes the electron electrode and the hole electrode.

With respect to claims 8-11 and 22-27, a person of skill in the art would immediately recognize that the provisional application sufficiently describes the channel of organic semiconductor material.

With respect to claim 21, a person of skill in the art would immediately recognize that the provisional application sufficiently describes the substrate.

Accordingly, Applicants respectfully request the Examiner to assign the benefit date of the provisional patent application serial no. 60/458,847 for all pending claims.

Information Disclosure Statement

The Office Action states that the Information Disclosure Statement (IDS) filed on September 26, 2005 failed to comply with 37 CFR §1.98(a)(3) because it did not include a concise explanation of the relevance of FR 2,758,431A.

Applicants are hereby concurrently filing a Supplemental IDS providing a computer-generated English language translation of FR 2,758,431A.

Applicants respectfully request the Examiner to review and consider FR 2,758,431A.

Summary of Objections and Rejections

The Office Action set forth the following objections and rejections:
drawings stand objected to due to the alleged incompliance with 37 CFR §1.121(d);

specification stands objected to due to a number of typographical errors;

claims 3, 9, 10, 11, 17 and 25 stand objected to due to informalities;

claims 5 and 6 stand rejected under 35 U.S.C. §112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicants regard as their invention;

claims 1-3, 5, 7-8 and 22-28 stand rejected under 35 U.S.C. §102(b) as being anticipated by Schön et al, *A Light-Emitting Field-Effect Transistor*, Science, Vol. 290, 3 Nov 2000 (Schön et al);

claims 1-9 and 15-28 stand rejected under 35 U.S.C. §102(e) as being anticipated by US Patent No. 6,828,583 B2 (Heeger);

claims 10-11 stand rejected under 35 U.S.C. §103 (a) as being unpatentable over Heeger in view of US Patent No. 5,596,208 (Dodabalapur);

claim 12 stands rejected under 35 U.S.C. §103 (a) as being unpatentable over Heeger in view of Rogers et al, Low-Voltage 0.1 micron Organic Transistors and Complementary Inverter Circuits Fabricated With a Low-Cost Form of Near-Field Photolithography, Appl. Phys. Lett, Vol. 75, No. 7, 1999 (Rogers et al); and

claims 13 and 14 stand rejected under 35 U.S.C. §103 (a) as being unpatentable over Heeger in view of US Patent Application Publication No. 2003/0122120 (Brazis).

Drawings Objection

The Office Action objects to the drawings and states that corrected drawings in compliance with 37 CFR §1.121(d) are required, whereby Figures 1 and 2 are designated by a legend such as "Prior Art."

Applicants are hereby filing the requested corrected drawings. Accordingly, it is respectfully submitted that the objection has been overcome and should be withdrawn.

Specification Objections

The Office Action objected to the specification due to several informalities. Applicants have hereby amended the specification to correct these informalities. No new matter has been introduced by these amendments.

Accordingly, it is respectfully submitted that the objections have been overcome and should be withdrawn.

Claim Objections

Claims 3, 9, 10, 11, 17 and 25 stand objected to due to minor stylistic errors.

Applicants have hereby amended claims 3 and 25 to correct these minor stylistic errors. Accordingly, the objections with respect to these claims have been overcome.

Claims 9, 10, 11 and 17 have hereby been canceled, and therefore the objections with respect to these claims are moot.

35 U.S.C. §112, second paragraph, rejection

Claims 5 and 6 stand rejected under 35 U.S.C. §112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicants regard as their invention. Applicants respectfully traverse.

Applicants have amended claims 5 and 6 to delete the formula

$\text{Re}_{1-x}\text{A}_x\text{MnO}_3$.

Accordingly, it is respectfully submitted that the rejection has been overcome and should be withdrawn.

35 U.S.C. §102 (b) rejection

Schön et al

Claims 1-3, 5, 7-8 and 22-28 stand rejected under 35 U.S.C. §102(b) as being anticipated by Schön et al. Applicants respectfully traverse the rejection.

Applicants have hereby canceled claims 7 and 23, and therefore the rejection with respect to these claims is now moot and should be withdrawn.

Applicants have amended claim 1 to add the limitation of claim 10; to recite a channel of a single thin layer of a single polycrystalline small molecule organic semiconductor; and to recite that polycrystalline semiconductor material

has a crystal grain size (a limitation from now canceled claim 11). Support can be found, for example, at page 2, lines 9-10; page 3, line 30; page 4, line 1; page 4, lines 10-11; and page 11, last paragraph.

Because claims 10 and 11 were not rejected as anticipated, it is believed to be implicitly recognized in the Office Action that Schön et al do not disclose, either expressly or inherently, an electroluminescence generating device with a channel comprising a polycrystalline semiconductor material, wherein the polycrystalline semiconductor material has a crystal grain size.

Claims 2, 3, 5, 8, 22, and 24-28 are dependent from claim 1, and therefore incorporate all of its limitations. Accordingly, these claims are also novel over Schön et al.

Accordingly, it is respectfully submitted that the rejection has been overcome and should be withdrawn.

Heeger

Claims 1-9 and 15-28 stand rejected under 35 U.S.C. §102(b) as being anticipated by Heeger. Applicants respectfully traverse the rejection.

Applicants have hereby canceled claims 7 and 23, and therefore the rejection with respect to these claims is now moot and should be withdrawn.

As explained above, Applicants have amended claim 1 to add the limitations of claims 10 and 11 and to recite a channel of a single thin layer of a single polycrystalline small molecule organic semiconductor. Because claims 10 and 11 were not rejected as anticipated by Heeger, it is believed to be implicitly recognized in the Office Action that Heeger does not disclose, either expressly or inherently, an electroluminescence generating device with a channel comprising a polycrystalline semiconductor material.

Claims 2-6, 8, 9, 15-22 and 24-28 are dependent from claim 1, and therefore incorporate all of its limitations. Accordingly, these claims are also

novel over Heeger.

Accordingly, it is respectfully submitted that the rejection has been overcome and should be withdrawn.

35 U.S.C. §103 (a) rejection

Heeger in view of Dodabalapur

The Office Action rejects claims 10-11 under 35 U.S.C. §103(a) as allegedly being obvious over Heeger in view of Dodabalapur. Applicants respectfully traverse the rejection.

Claims 10 and 11 have hereby been canceled, and therefore the rejection with respect to these claims is now moot and should be withdrawn. However, because the limitations of claims 10 and 11 have been incorporated into claim 1, Applicants will now explain why claim 1 is not obvious over Heeger in view of Dodabalapur

In contrast with the present invention, Heeger only teaches that amorphous materials can be used as the channel. Heeger does not make any reference to the possibility of using a single thin layer of a single polycrystalline small molecule material. There is not any reason or suggestion in Heeger that would lead a skilled artisan to use a single thin layer of a polycrystalline small molecule material with a reasonable expectation of success.

Dodabalapur does not cure this deficiency. Dodabalapur only considers a P-N heterostructure comprising a layer of a first organic material of a first conductivity type and a layer of a second organic material of a second conductivity type that is in contact with the layer of the first organic material. Dodabalapur does not make any reference to the possibility of using a single thin layer of a single polycrystalline small molecule material. Thus, even if Heeger and Dodabalapur are combined, a skilled artisan would not arrive at the claimed invention.

Accordingly, Heeger in view of Dodabalapur does not render claim 1 obvious. Other pending claims are not obvious over Heeger in view of Dodabalapur for at least the same reasons that claim 1 is not obvious.

Heeger in view of Rogers

The Office Action rejects claim 12 under 35 U.S.C. §103(a) as allegedly being obvious over Heeger in view of Rogers. Applicants respectfully traverse the rejection.

Claim 12 is dependent from claim 1, and therefore, incorporates all of its limitations. As Applicants have explained above, Heeger does not render claim 1 obvious because it does not teach or suggest the use of a single thin layer of a single polycrystalline small molecule material. Rogers does not cure this deficiency because it is also silent about a single thin layer of a single polycrystalline small molecule material. Thus, even if Heeger and Rogers are combined, a skilled artisan would not arrive at the claimed invention.

Accordingly, Heeger in view of Rogers does not render claim 12 obvious.

Heeger in view of Brazis

The Office Action rejects claims 13 and 14 under 35 U.S.C. §103(a) as allegedly being obvious over Heeger in view of Brazis. Applicants respectfully traverse the rejection.

Claims 13 and 14 are dependent from claim 1, and therefore, incorporate all of its limitations. As Applicants have explained above, Heeger does not render claim 1 obvious because it does not teach or suggest the use of a single thin layer of a polycrystalline small molecule material. Brazis does not cure this deficiency because it is also silent about a single thin layer of a polycrystalline small molecule material. Thus, even if Heeger and Brazis are combined, a skilled artisan would not arrive at the claimed invention.


Accordingly, Heeger in view of Brazis does not render claims 13 and 14 obvious.

Conclusion

Applicants respectfully submit that the application is in condition for allowance. Accordingly, a Notice of Allowance is believed in order and is respectfully requested. Should the Examiner have any questions concerning the above, she is respectfully requested to contact the undersigned at the telephone number listed below. If the Examiner notes any matters which the Examiner believes may be expedited by a telephone interview, the Examiner is requested to contact the undersigned.

If any additional fees are incurred as a result of the filing of this paper, authorization is given to charge Deposit Account No. 23-0785.

Respectfully submitted,


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